

# **County of Sacramento**

## **Storm Water Utility**



## **Guidelines for Operating And Maintaining Creeks and Channels**

**Updated February, 2006**

Prepared by  
Department of Water Resources  
Drainage Operations and Maintenance Section

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## **SECTION 1 - BACKGROUND**

The County of Sacramento maintains approximately 350 miles of creeks and channels in the unincorporated portions of the County, and the Cities of Citrus Heights and Rancho Cordova. These 350 miles are composed of approximately 300 miles of unlined open creeks and channels, and 50 miles of concrete lined channels. For maintenance purposes, creeks and channels are broken up into six different categories that range from natural to various degrees of improved and unimproved channels (T1 through T5) according to the requirements of California Fish and Game. T1 channels are improved channels without riparian habitat. T2's are improved channels with significant riparian habitat. T3's are improved mitigated channels. T4's are unimproved channels without significant riparian habitat, and T5's are unimproved channel with significant riparian habitat. Natural streams (N) typically include significant riparian habitat and have been included into the natural streams program by resolution from the County Board of Supervisors.

The classification of each channel significantly affects the type of work, cleaning schedule, and equipment that can be used within the boundaries of each water course. For example concrete lined channel may be cleaned by hand or by mechanical tools year round. However, creeks that have been included in the natural streams program may only be cleaned by hand maintenance crews between June 1<sup>st</sup> and October 30<sup>th</sup> of each year.

## **SECTION 2 - PERMIT REQUIREMENTS**

### **NPDES Permitting**

The County of Sacramento (County) regulates stormwater discharges from our municipal separate storm drain system or MS4 system in accordance with the National Pollutant Discharge Elimination System (NPDES). The County's MS4 Permit was issued in 1990 under Phase I stormwater permitting, as a joint permit for the Cities of Sacramento, Folsom and Galt (Permit Number CAS082597).

The current MS4 Permit was adopted on December 6, 2002 and expires on December 1, 2007 and the Cities of Citrus Heights, Elk Grove and Rancho Cordova have been added as co-permittees in the current MS4 Permit. Each co-permittee must document compliance with the MS4 Permit and the County currently provides limited drainage maintenance and stormwater quality services to Citrus Heights and Rancho Cordova. Therefore, any services provided by the County on behalf of these cities or within its own jurisdiction must be documented accordingly. The County no longer provides and stormwater services to the City of Elk Grove.

As a requirement of the NPDES permit the County prepares an annual work plan for each fiscal year. The work plan requires that the County prepare and implement guidelines for operating and maintaining creeks and channels. The content of this guideline is intended to satisfy NPDES requirements.

### **United States Department of Fish and Game**

Creek and channel maintenance shall occur in accordance with State of California, Department of Fish and Game (Fish and Game) requirements. Current Fish and Game requirements are outlined in the 2000-2004 Memorandum of Understanding between the

County of Sacramento and California Department of Fish and Game Regarding Routine Maintenance Activities in Unimproved and Improved Channels (MOU). This MOU was extended in October, 2004 through December, 2009. A copy of the MOU is provided in Appendix A.

### **SECTION 3 - CHANNEL TYPES**

The following is a brief summary of the channel classification system used by the County. Exhibits detailing the various channel types encountered within the county can be found at the end of Appendix A.

#### **Channel Type T1**

Type T1 channels include improved creeks and channels without significant riparian habitat and in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within constructed banks and concrete-lined, rip rapped, or vegetation barren earth channels with modified banks. T1 channels may be mechanically cleaned or hand cleaned year round. All other creek and channel designations shall be cleaned and maintained in accordance with the scheduling restrictions listed below.

#### **Channel Type T2**

These waterways include improved creeks and channels with significant riparian habitat in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within earth lined, constructed banks. The riparian habitat consists of volunteer vegetative growth and does not contain mitigated riparian habitat.

#### **Channel Type T3**

T3 channels include improved mitigated channels in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within constructed banks and rip rapped, or earth channels with modified banks, and where significant efforts to mitigate the previous loss of riparian habitat are incorporated into the channel.

#### **Channel Type T4**

These channels include unimproved waterways without significant riparian habitat in which significant man-made alterations and/or improvements have not occurred and where significant riparian habitat does not exist.

#### **Channel Type T5**

These channels include unimproved waterways with significant riparian habitat in which significant man-made alterations and/or improvements have not occurred.

#### **Designated Natural Stream**

These channels exist as both improved and unimproved channels. The natural streams are those designated by the County as natural streams by resolution and typically contain significant riparian habitat. A designated natural stream shall also be defined, as appropriate,

by the previously listed types 1 through 5. These streams shall have the flow line cleaned only. A copy of the creeks and channels included in the Natural Stream Program is provided in Appendix B.

#### **SECTION 4 - STANDARD PROTOCOL FOR OPERATING AND MAINTAINING CREEKS AND CHANNELS**

The following is a brief summary of maintenance practices and restrictions for the creeks and channels maintained by the County. Detailed practices and procedures as required by the Fish and Game MOU are included in Appendix A.

##### **Annual Creek and Channel Inspections**

The County shall visually inspect all creeks and channels a minimum of once per year. The inspections will start in January and must be completed by the end of May in order to complete the cleaning schedule for the months that follow. Inspections are done by walking and/or driving the channels to check for erosion, vegetation, debris, illicit connections, and flow obstructions. There are three broad maintenance categories for work performed on creeks and channels. These three categories include mechanical cleaning, hand crew cleaning, and spraying.

##### **Mechanical Cleaning**

Mechanical cleaning involves the use of machinery to remove vegetation, debris, and sediment from drainage facilities. Examples of machinery that are commonly used by maintenance crews include bobcats, excavators, backhoes, and/or slope mowers. Mechanical cleaning shall be performed on non channels at the request of Drainage Operations and Maintenance Section, and on concrete lined channels annually.

##### **Hand Crew Cleaning**

Hand crew cleaning is the most prevalent type of cleaning performed on the creeks and channels. This type of cleaning involves the use of shovels, picks, weed eaters and chainsaws. This type of cleaning shall be done on designated creeks and channels once per year as determined by the annual inspection. This type of cleaning is used to remove debris from channels, re-establish flow lines, and create fire breaks. Currently, the City of Citrus Heights performs hand cleaning within its jurisdiction. The County does not provide either hand crew cleaning or spraying within the City of Citrus Heights jurisdiction.

##### **Spraying**

Spraying shall be conducted as outlined in the Standard Protocol for Application of Herbicides and Pesticides for the use at Creeks, Channels, and Detention Basins Maintained by County Drainage Maintenance, and the County of Sacramento Aquatic Pesticide Application Plan, July 2004.

The County uses the application of herbicides and pesticides to help limit growth of vegetation in drainage channels, detention basins, creeks and on levees. Application of herbicides and pesticides significantly reduces the need for hand and mechanical cleaning and helps to maintain the stormwater carrying capacity of County drainage facilities.

Glyphosate is the only type of aquatic pesticide applied by the County to drainage channels, detention basins, creeks, and levees maintained by the County. Glyphosate is a non-selective herbicide that kills vegetation that it comes in contact with.

Spraying is conducted within incorporated and unincorporated partitions of Sacramento County and the City of Rancho Cordova. The County does not currently provide spraying services for the City of Citrus Heights.

### **Authorized Maintenance Activities**

The following are Fish and Game authorized maintenance activities. In the event that a maintenance activity does not meet authorization requirements, Fish and Game must be notified in writing 14 days prior to the commencement of work.

#### *Debris or Obstruction Removal*

- Scope - Removal of debris which noticeably reduce channel capacity or would result in accelerated erosion and/or cause pump damage.
- Limitations – Unless chipped or mulched, all cleared debris must be removed from the 100-year flood plain. Large diameter limbs and trees left for natural habitat must be staked or cabled in place to prevent flotation.

#### *Silt, Sand, or Sediment Removal*

- Scope - Removal/displacement of silt, sand, or sediment in the immediate vicinity of man-made facilities or structures which cause obstruction to flow.
- Limitations – Removal shall be limited to within 100 feet of drainage structures. Work shall be completed during low flow conditions. Turbidity shall be minimized by silt fences and/or bypass pumping.

#### *Vegetation Control*

- Scope - Control of aquatic vegetation to remove obstructions to flow from toe of slope to toe of slope of unimproved channels, as shown on Exhibit 7 of Appendix A. Control of weeds and grasses on maintenance roads within the banks, to conduct facility inspection, by mechanical means, hand labor, or chemical application. Control of the lower branches of woody growth, less than 4-inches DBH, growing on the lower stream banks from ground level to a distance of 6 feet above the ground level. Removal of non-native vegetation from top of bank to top of bank as shown on Exhibit 8 of Appendix A. Control of vegetation may be performed with the use of mechanical devices, chemicals, or hand labor.
- Limitations – Trees greater than 4-inches in diameter at breast height shall not be removed. Only herbicides registered with the California Department of Pesticide

Regulation shall be used. Wildlife shall be allowed to leave the maintenance area unharmed and shall not be flushed or removed from the site.

#### *Repair of Previous Erosion Control Work*

- Scope - Repair of failed rock, sacked concrete, or gabion section providing erosion control.
- Limitations – Maintenance activities shall be limited to within 20 feet of existing structures.

#### *Minor Erosion Control Work*

- Scope - Sloping, installation of rock, gabions, or other erosion control measures as shown in Exhibits 6 and 7 of Appendix A, to stabilize the eroded area.
- Limitations – Work shall be limited within 30-feet vertically from channel invert and no longer than 50-feet in length. Work shall be completed during low or no flow conditions. Vegetation removal shall be minimized. Channel bottom and immediate area shall be returned to its natural state at project completion including scarifying compacted channel bottom and replanting vegetation.

#### *Overbank Maintenance*

- Scope – Work performed outside of the channel bottom, side slopes, and top of bank. Overbank areas are typically within the floodplain but outside of the main floodway.
- Limitations – Maintenance activities within the overbank area of natural streams shall not be permitted without coordination with Fish and Game. No net loss of habitat shall be permitted.

#### **Maintenance Schedule Limitations**

The following is a list of scheduling limitations during which all work within a creek or channel must be performed. The limitations apply to all channel types other than T1 channels. In the event that schedule conflicts occur, the most restrictive limitation shall govern.

Mechanical Crews - June 1 to October 30

Hand Crews - June 1 to March 1

Spraying - March 1 to November 30

Giant Garter Snake Habitat - May 1 to October 1

## **APPENDIX A**

### **CALIFORNIA FISH AND GAME MEMORANDUM OF UNDERSTANDING**

MEMORANDUM OF UNDERSTANDING

between

COUNTY OF SACRAMENTO PUBLIC WORKS AGENCY

and

CALIFORNIA DEPARTMENT OF FISH AND GAME

regarding

ROUTINE MAINTENANCE ACTIVITIES  
IN UNIMPROVED and IMPROVED CHANNELS

(2000 - 2004)

This Memorandum of Understanding (MOU) by and between the California Department of Fish and Game, hereinafter called the "Department", and the COUNTY OF SACRAMENTO PUBLIC WORKS AGENCY, hereinafter called the "Agency", is for the purpose of delineating and defining routine maintenance activities in improved channels and unimproved natural channels and shall not require further notice and agreement in compliance with Section 1601 of the Fish and Game Code.

WHEREAS, Section 1601 of the Fish and Game Code allows the Department to propose reasonable modifications to certain maintenance and construction projects as would allow for the protection and continuance of existing fish and wildlife resources that may be substantially adversely affected by that construction project; and

WHEREAS, with regard to any project that involves routine maintenance and operation of water supply, drainage, flood control, or waste treatment and disposal facilities, notice to, and agreement with, the Department is not required subsequent to the initial notification and agreement, unless the work as described in the agreement is substantially changed or conditions affecting fish and wildlife resources change, and the resources are adversely affected by the activity conducted under the agreement; and

WHEREAS, it is essential that the Agency perform routine maintenance activities within improved channels and unimproved natural channels to maintain the designed capacity of the channel(s), to protect the Agency's investment, to prevent loss of life and property, and to promote efficient and wise use or disposal of water; and

WHEREAS, consistent with the policies of California Fish and Game Code Section 1600 et seq., the protection and conservation of the fish and wildlife resources of California are of utmost public interest, and fish and wildlife conservation is a proper responsibility of the State; and

WHEREAS, in order to avoid future conflicts, it is mutually beneficial to delineate and define limited natural stream maintenance and routine maintenance, to establish procedures to expedite maintenance activities, and to provide for the protection and continuance of the existing fish or wildlife resources during such maintenance activities; and

WHEREAS, nothing in this MOU shall constitute a waiver of any future or current Department claims to the use and maintenance of natural conditions under the public trust doctrine; and

WHEREAS, nothing in this MOU shall constitute a waiver of the Agency's claimed rights to maintain and operate the channel(s) solely from the flood control standpoint without a 1601 agreement; and

WHEREAS, this MOU is not intended to affect the Agency's rights under Fish and Game Section 1601 (f) to undertake emergency work necessary to protect life or property.

NOW THEREFORE, the Department and the Agency agree as follows:

## I. DEFINITIONS

The following definitions shall govern this MOU:

**(Type 1) Improved Channel without significant riparian habitat-** An improved channel without significant riparian habitat is defined as a channel of a stream or river in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within constructed banks and concrete-lined, rip rapped, or vegetation barren earth channels with modified banks (including leveed systems). This type of channel lacks any significant riparian habitat. The waterway reaches listed in Exhibit 1 attached hereto include the exclusive list of improved channels as defined in the MOU.

**(Type 2) Improved Channel with significant riparian habitat-** An improved channel with significant riparian habitat is defined as a channel of a stream or river in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within earth lined, constructed banks (including leveed systems). The riparian habitat consists of volunteer vegetative growth and does not contain mitigated riparian habitat.

**(Type 3) Improved Mitigated Channel-** An improved mitigated channel is defined as the channel of a stream or river in which significant man-made alterations have occurred to improve the passage of irrigation and/or flood flows, including straightening the channel or containing the flows within constructed banks and rip rapped, or earth channels with modified banks (including leveed systems) and where significant efforts to mitigate the previous loss of riparian habitat are incorporated into the channel. The waterway reaches listed in Exhibit 1 attached hereto includes the exclusive list of improved mitigated channels as defined in the MOU.

**(Type 4) Unimproved channel without significant riparian habitat-** An unimproved channel without significant riparian habitat is defined as a channel of a stream or river in which significant man-made alterations and/or improvements have not occurred and where significant riparian habitat does not exist. Channels not listed in Exhibit 1 attached hereto are considered to be unimproved channels with significant riparian habitat.

**(Type 5) Unimproved channel with significant riparian habitat-** An unimproved channel with significant riparian habitat is defined as a channel of a stream or river in which significant man-made alterations and/or improvements have not occurred. This type of channel contains significant riparian habitat. The waterway reaches listed in Exhibit 1 attached hereto includes the exclusive list of unimproved channels as defined in the MOU.

**Designated Natural Stream** – These channels exist as both improved and unimproved channels. The natural streams are those designated by the County as natural streams by resolution and typically contain significant riparian habitat. A designated natural stream shall also be defined, as appropriate, by the previously listed types 1 through 5.

**Channel banks, channel bottoms, low flow channels** and other appurtenant features of channel Types 1 through 5 are defined by the illustrations shown on Exhibits 2 through 6.

**Significant riparian habitat** – Woody vegetation within the 100 year flood plain, such as willows, cottonwood trees, alders, oaks, and other native trees, shrubs, and bushes that provides habitat to birds, rodents, and other types of animals.

**Maintenance activities** – Limited and routine maintenance activities in natural streams and other channels are defined as the removal/displacement of sand, silt, sediment, debris, rubbish, woody or aquatic vegetation and other obstructions to flow; the control of weeds, grasses, and emergent vegetation; and the cleaning, clearing, repair, and replacement with in-kind or similar erosion control facilities and constructed channel improvements; all as authorized to maintain the structural integrity and capacity of the channels.

**Diameter Breast Height (DBH)** - Diameter of a tree trunk at a point measured 4 ½ feet above grade.

**Overbank** – Overbank areas are defined as the areas outside of the channel bottom, side slopes, and top of bank. Overbank areas are typically within the floodplain but outside of the main floodway. Special conditions are included in this document for maintenance work in the Overbank areas of Designated Natural Streams.

## II. AUTHORIZED ACTIVITIES

The routine maintenance activities identified below, when performed on the channel(s) and work area(s) specifically specified in Exhibit 1 and in accordance with the procedures described below, shall not require further notice to, or agreement with, the Department. For unanticipated routine maintenance activities that are located outside the approved stream type location or outside the approved work period, the Agency, shall provide the Department written notice of such activities 14 days prior to commencement of the work (See Exhibit 11). The Department may require individual streambed alteration agreements for activities that are deemed not to be routine maintenance.

### A. Debris or Obstruction Removal

Removal of debris, trash, rubbish, flood-deposited woody and herbaceous vegetation, fallen trees, dead trees which are in clear danger of falling in or across the channel, branches, and associated debris which noticeably reduces channel capacity, would result in accelerated erosion and/or cause pump damage.

Mitigation Measure: All cleared vegetation and debris shall be removed from the normal high water areas of the stream corridor and shall not be redeposited within the 100-year floodplain or the debris may be “chipped” and scattered as “mulch” at the project sites. Fallen trees and large tree limbs may be moved outside of and parallel to the main flow area of the stream. They shall be staked and cabled to the ground to prevent floatation and to provide biological habitat.

### B. Silt, Sand, or Sediment Removal

Removal/displacement of silt, sand, or sediment in the immediate vicinity of man-made facilities or structures which cause obstruction to flow.

Mitigation Measure: In natural streams and unimproved channels, excavation of silt, sand or sediment shall not exceed 100 - feet linear from the structure without specific notice to the Department. Removal of silt, sand, sediment from improved channels and the forebay of sump pumping plants shall be performed to the extent necessary to ensure proper operation of the improved channels and sump pumping plant.

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Mitigation Measure: Precautions to minimize turbidity/siltation shall be taken into account during silt, sand, and sediment removal activities. Silt, sand, and sediment removal operations shall be limited to periods when there is low or no stream flow.

Mitigation Measure: In natural streams, unimproved channels, and in improved mitigated channels, unless otherwise agreed, should stream flow exist, the stream flow should be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. Where appropriate, silt fences, screening, or other measures should be placed in the channels to reduce turbidity caused by the maintenance activity. Any temporary dam or other artificial obstruction constructed shall only be built from materials such as sandbags or clean gravel which will cause little or no siltation. When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam or other artificial obstruction.

Mitigation Measure: Where removal of accumulated sand, silt, sediment, and other obstructions to maintain channel capacity in a natural stream, unimproved channel, or improved mitigated channel exceed 100 feet, the Agency shall submit separate plans detailing the project. Channels should be cleared in such a manner that trees greater than four (4) inches DBH are avoided or are trimmed as is necessary to gain access. In channels where small trees are contiguous on both sides of the watercourse, thinning of trees may be authorized to permit access. Removal of all vegetation along long reaches of the stream bank shall be avoided. Unless agreed otherwise, any work area left barren of vegetation as a result of the maintenance activities shall be restored to its natural state by seeding, or other agreed upon means with native species of trees, shrubs, and grasses, within thirty (30) days or by October 30th of the year the activity occurred.

C. Vegetation Control

Control of aquatic and terrestrial vegetation may be performed with the use of mechanical devices, chemicals, or hand labor. The following activities are authorized: Control of aquatic vegetation, weeds, grasses, shrubs and woody growth to remove obstructions to flow in improved channels and in the channel bottom from toe of slope to toe of slope of unimproved channels, as shown on Exhibit 7. Control of weeds and grasses on maintenance roads within the banks, to conduct facility inspection, by mechanical means, hand labor, or chemical application. Control of the lower branches of woody growth, less than four (4) inches DBH, growing on the lower stream banks from ground level to a distance of 6 feet above the ground level. Where appropriate, removal of non-native

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vegetation (bamboo, tree tobacco, castor bean, pampas grass, eucalyptus, acacia, etc.), including stump and root removal from top of bank to top of bank, as shown on Exhibit 8.

Mitigation Measure: Trees greater than four (4) inches DBH shall not be removed without consultation with the Department.

Mitigation Measure: Cleared or trimmed vegetation may be “chipped” and scattered as “mulch” at the project sites or removed from the normal high water areas of the stream corridor.

Mitigation Measure: Only herbicides registered with the California Department of Pesticide Regulation shall be used. All herbicides shall be applied in accordance with regulations set by the California Department of Pesticide Regulation. All herbicides shall be used according to labeled instructions, (specifically the use of chemicals in the vicinity of State Waters). Labeled instructions for the herbicide used shall be made available to the Department upon request. Any non-plant aquatic life killed by chemical treatment shall be reported immediately to the DEPARTMENT.

Mitigation Measure: If any wildlife is encountered during the course of routine maintenance, said wildlife shall be allowed to leave the maintenance area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site. No trees shall be disturbed that contain active bird nests until all eggs have hatched and young birds have fledged without prior consultation and approval of a Department representative.

**D. Overbank Maintenance (Designated Natural Streams)**

When it becomes necessary to work in the overbank area of any designated natural stream an amendment to the MOU shall be submitted by the Agency to the Department for review. All maintenance activities and mitigation measures shall be conducted in compliance with this Section II, “Authorized Activities,” parts A, B, C, E and F and the following:

Mitigation Measure: To protect and maintain riparian wetland systems and to ensure a “No Net Loss” in wildlife value or acreage or wetlands and riparian habitat, the Agency shall have overbank maintenance activity in a designated natural stream monitored by a qualified biologist or botanist. The monitoring report shall identify and enumerate the vegetation and acreage impacted by the maintenance activity. The monitoring report, at a

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minimum, shall include all areas within the low flow channel overbank areas. The Agency shall submit to the Department a revegetation plan which endeavors to ensure no net loss of riparian habitat or values. Upon approval of the Department, implementation of the revegetation plan shall begin as soon as is practical after completion of maintenance activity in the specified reaches of natural stream. To ensure a successful revegetation effort, all planted trees shall be monitored and maintained as necessary for five (5) years. Any recurring maintenance in mitigated overbank areas shall be considered routine and shall not require additional mitigation measures.

E. Repair of Previous Erosion Control Work

Repair of failed rock, sacked concrete, or gabion section. Maintenance activities shall be confined to the failed section and immediately adjacent areas (adjacent areas not to exceed twenty (20) feet) affected by the failure.

F. Minor Erosion Control Work

Sloping, installation of rock, gabions, or other erosion control measures as shown in Exhibits 6 and 7, from the toe of slope in the channel to a maximum of thirty (30) feet, measured vertically, above the channel invert to stabilize the eroded area. The length of the project work shall be less than fifty (50) feet.

Mitigation Measure: Project work shall be limited to periods when there is low or no stream flow. Unless otherwise agreed, should stream flow exist, the stream flow shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. Any temporary dam or other artificial obstruction constructed shall only be built from materials such as sandbags or clean gravel which will cause little or no siltation. When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam. Project work shall be performed in a manner that minimizes stream turbidity.

Mitigation Measure: Removal of vegetation shall be minimized. Trees greater than four (4) inches DBH shall not be removed without consultation with the Department. To the extent possible, the stream channel shall be returned to its natural state and without creating a possible future bank erosion problem. Erosion control shall be confined to specific locations listed in Exhibit 9 and 10.

Mitigation Measure: Upon project completion, the stream channel bottom shall be scarified from the work site to the equipment entrance, where activities have caused compaction of the streambed soil material. Unless agreed otherwise, any work area left barren of vegetation as a result of the maintenance activities shall be restored to its natural state by seeding, or other agreed upon means with native species of trees, shrubs, and grasses, within thirty (30) days or by October 30th of the year the activity occurred.

### III. TIME AND MANNER OF MAINTENANCE ACTIVITIES

#### A. SCHEDULE LIMITS

Maintenance activities shall be performed at a time and in a manner so that the proposed maintenance activities minimize adverse impacts and provide for the protection and continuance of the fish and wildlife. Periods of implementation of maintenance activities within **unimproved channels with significant riparian habitat (Type 5), improved channels with significant riparian habitat (Type 2), improved mitigated channels (Type 3) and the flowing portion of unimproved channels without significant riparian habitat (Type 4) listed in Exhibit 1, and all other channels (regardless of type) not listed in Exhibit 1** are as follows:

**Mechanical crews -** June 1 to October 30 \*

**Hand crews -** June 1 to March 1 \* (regular cleaning)  
Critical Locations Anytime debris build-up at bridges or culverts threatens to flood existing structures or facilities.

**Giant Garter Snake Habitat -** May 1 to October 1 \*

\* In the case of schedule conflicts the more restrictive limits shall apply.

Implementation of maintenance activities outside the wetted (flowing) portion of **unimproved channels without significant riparian habitat (Type 4) listed in Exhibit 1, and improved channels without significant riparian vegetation (Type 1) listed in Exhibit 1** are not restricted to a specific time period, unless otherwise agreed to in writing.

#### 2. OTHER REQUIREMENTS

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**Giant Garter Snake**

The following creeks maintained by the County of Sacramento Stormwater Utility have been identified by the Fish & Wildlife Service as critical habitat for the Giant Garter Snake:

<u>Creek Name</u>	<u>Watershed Number</u>
Laguna Creek (from Excelsior Rd to Sheldon Rd West of Bruceville Rd.)	16
Elk Grove Creek (from Bradshaw Rd to the confluence of Laguna Ck)	47
Adjoining creeks, channels, or tributaries within one mile of the above named creek reaches	

Construction and Maintenance activities within the Giant Garter Snake habitat will be conducted only between May 1 and October 1 (see Section III A.) when snakes are more active and are expected to move to avoid danger. Should the Giant Garter Snake be encountered on these creeks or any other maintenance area they may be flushed or herded to adjacent areas where no work will occur for at least one month. Sightings shall be reported to the Fish and Wildlife Service at (916) 979-2725.

Channel bank vegetation removal shall be performed on one side of creek, channel, or ditch at a time to allow snakes to migrate to the opposite side. Dewatered habitat shall remain dry for a minimum of 15 consecutive days prior to excavating or filling.

Should it become necessary to work in the Giant Garter Snake habitat between October 2 and April 30 Stormwater Utility Crews will contact the Fish and Wildlife Service at (916) 979-2725.

**Western Pond Turtle**

The following creeks maintained by the County of Sacramento Stormwater Utility have been identified as habitat for the Western Pond Turtle:

<u>Creek Name</u>	<u>Watershed Number</u>
Dry Creek North	27
Linda Creek	30

Should the Western Pond Turtle be encountered on these creeks or any other maintenance area they shall not be harassed, flushed, herded, or otherwise disturbed and work shall be avoided within 200 feet of the Western Pond Turtle aquatic habitat.

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**Salmon and Steelhead**

The following creeks maintained by the County of Sacramento Stormwater Utility have been identified as habitat for spawning Salmon and Steelhead:

<u>Creek Name</u>	<u>Watershed Number</u>
Dry Creek North	27
Linda Creek	30

Mitigation is accomplished through avoidance of work during spawning seasons and is met by adherence to the schedule and method limits in Section III A of this document.

**Elderberry Plant (Habitat for Elderberry Longhorn Beetle)**

Elderberry plants 1.0 inch in diameter at ground level shall be identified, marked, and protected to the drip line of the plant.

**Oak Trees**

Viable Oak Trees greater than 6.0 inch DBH shall be mitigated for at a minimum replacement ratio of 1:1 DBH. Viable oak trees greater than 6.0 inch DBH may be removed without mitigation if they are a safety hazard or cause damage to the hydraulic capacity of the channel.

**Raptor and Songbird Nesting**

Maintenance crews shall avoid working within the drip line of trees or shrubs that are, at the time of work, providing habitat for nesting raptors or songbirds.

**Beaver Dams**

The dams shall be removed under the methods and mitigation measures in Section IIA, "Debris and Obstruction Removal", of this MOU. Pond levelers, beaver relievers or other devices designed to discourage beaver dam construction and/or control the size of impoundments caused by beaver dams may be deployed.

**IV. REPORTING REQUIREMENTS**

The Agency shall provide to the Regional Manager, Region 2 of the Department, Exhibit 1 and a report describing the proposed maintenance activities and anticipated time schedule. Exhibit 1 and the report shall be submitted for review and approval prior to commencement of maintenance activities. The Department reserves the right to modify the stream definition types if maintenance activities at specific locations are viewed to adversely impact significant wildlife habitat. The written report shall include the following information: Typical problem descriptions, proposed solutions, equipment to be used, and the scheduled time periods of proposed activity. For unanticipated routine maintenance

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activities that are located outside the approved stream type location or outside the approved work period, the Agency, shall provide the Department written notice of such activities 14 days prior to commencement of the work (See Exhibit 11). The Agency shall notify the Department of any modifications made to Exhibit 1 and the proposed maintenance activities (See Section VI below).

**V. FEES**

A fee of \$5,180.00 for a five year period shall be paid to the Department prior to commencement of maintenance activities. This negotiated fee is based on the anticipated annual costs that will be reasonably incurred by the Department to administer and monitor the routine maintenance described in this MOU.

**VI. AMENDMENT AND TERMINATION**

This MOU cannot be amended or modified in any way except by a written agreement duly executed by the Department and the Agency. Any proposal for amendment or modifications must be delivered for review and approval by the Regional Manager or the official designated by the Regional Manager. If the Agency gives notice to and obtains the agreement of the Department to maintain additional specific facilities on improved or unimproved channels, any such additional facilities shall be added to Exhibit 1 by written amendment to this MOU, and all provisions of this MOU shall apply.

This MOU becomes effective on receipt of signed MOU and the fee agreed to in Section V. of this MOU. This MOU may be terminated by either party. Said termination shall become effective three (3) months after the party not initiating the termination has been duly notified in writing. This MOU expires on December 31, 2004. After the termination of this MOU the Agency may seek a new MOU. The Agency shall submit new exhibits when requesting a new MOU. The MOU processing fee is subject to change.

The Department reserves the right to suspend and/or revoke this MOU if the Department determines that the circumstances warrant. The circumstances that could require a reevaluation include, but are not limited to, the following: A) Failure to comply with the terms/conditions of this MOU. B) The information provided by the operator in support of the MOU is determined by the Department to be incomplete, or inaccurate. C) When new information becomes available to the Department representative(s) that was not known when preparing the original terms/conditions of this MOU. D) The project as described in the notification/agreement has changed, or conditions affecting fish and wildlife resources change.

**VII. ENTIRE AGREEMENT**

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This MOU, along with the exhibits attached hereto, constitutes the entire Agreement and understanding between the Department and the Agency for routine maintenance activities. This MOU supersedes all prior and contemporaneous routine activity agreements, representation, understanding, if any, whether oral or written.

**A copy of this MOU must be provided to the Contractor/work crew and must be in their possession at the work site. The MOU shall be presented to any Department of Fish & Game employee inspecting the stream maintenance activity.**

**VIII. OTHER ENVIRONMENTAL LAWS, STATUTES, OR REGULATIONS**

This MOU does not constitute any form of authorization, permit, biological opinion, or compliance with the requirements and provisions of any other statute, regulation, requirement, or ordinance respecting the protection or conservation of fish and wildlife resources. Those statutes include, but are not limited to, the California Environmental Quality Act, the California Endangered Species Act, or the Federal Endangered Species Act.

Various work and activities encompassed by this MOU may require prior approval by the Corps of Engineers and/or may be governed by special conditions of the Department of the Army permit issued for the project. Nothing in this MOU shall be construed to alleviate the need to comply with the terms and conditions of the Department of the Army permit or obtain the Corps of Engineers authorization, where applicable.

**THE DEPARTMENT OF FISH AND GAME**  
The Resources Agency of California

By: \_\_\_\_\_  
Banky E. Curtis  
Regional Manager  
Sacramento Valley Central Sierra Region

\_\_\_\_\_  
Date

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County of Sacramento  
2000 - 2004**

**COUNTY OF SACRAMENTO PUBLIC WORKS AGENCY  
A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA**

By: \_\_\_\_\_ Date \_\_\_\_\_  
Michael Peterson, Principal Civil Engineer  
Sacramento County  
Department of Water Resources